

C. Remarks

The claims are 1-9, with claims 1, 5 and 9 being independent. Claim 1 has been amended as to form. No new matter has been added. Reconsideration of the present claims is expressly requested.

Claims 1-4 stand rejected under 35 U.S.C. § 112, second paragraph, as being allegedly indefinite. The Examiner has alleged that these claims are incomplete, because claim 1 is missing a step of forming a mold with the required radius as stated in its preamble.

In response, step (d) in claim 1 has amended as follows: “performing electroplating to form the mold with the desired radius (R) of curvature using the conductive portion of the substrate as a cathode to deposit a plated layer in the opening and on the mask layer”. Accordingly, the above rejection should be withdrawn.

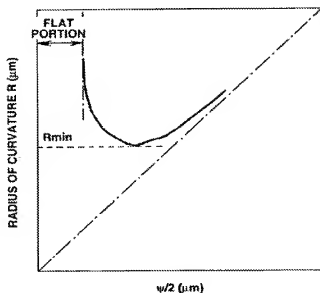
Claims 1, 5-7 and 9 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by the admitted prior art shown in Figs. 1 and 2 and discussed in the specification on pages 6-8. Claims 2-4 and 8 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious in view of the above-mentioned admitted prior art. The grounds of rejection are respectfully traversed.

The presently claimed invention is related, in pertinent part, to a method of making a mold for a microlens having a desired radius (R) of curvature and a method for making the microlens using the mold. In either method, the mold is formed by electroplating such that the electroplated material reaches a minimum radius R of curvature (R_{min}) before the desired radius is reached.

The Examiner has alleged that it is inherent in the electroplating operation that the plated material passed through some minimal radius of curvature prior to achieving a desired curvature radius. Applicants respectfully disagree, particularly in view of the disclosure in the specification at page 26 and Fig. 5.

Specifically, during electroplating, the deposited material first has a flat portion, which eventually disappears as the plated layer develops a curvature radius. This curvature radius, however, initially decreases until it reaches a minimum value (R_{\min}). Then, as the electroplating growth proceeds, the radius gradually increases. Accordingly, the curvature radius does not necessarily reach R_{\min} before achieving the desired value. This is clearly demonstrated in Fig. 5:

FIG.5



In essence, as shown in Fig. 5, the curvature can have the “desired” radius twice, namely, “before” and “after” reaching the minimum radius, as the electroplating growth proceeds. According to the presently claimed method, the mold is formed “after” reaching the minimum radius.

When the shape of the electroplated material at the desired radius is compared before and after reaching the minimum radius, the former has a height that is smaller than its radius, while the latter has approximately the same height and radius (nearly hemispherical shape). Thus, the presently claimed invention improves the shape of the plated material by allowing the electroplating to proceed until after the minimum radius of curvature is reached.

Accordingly, it is clear that the allegedly admitted prior art in the specification does not inherently anticipate the present claims, because the plated material does not necessarily pass through a minimal radius of curvature prior to achieving a desired curvature radius. Furthermore, this prior art does not suggest electroplating as claimed.

Claims 1-9 stand rejected under the judicially created doctrine of obviousness-type double patenting over claims 14-43 in U.S. Patent No. 6,656,393 B2. The grounds of rejection are respectfully traversed.

The present application is a division of the ‘393 patent. Present claims 1-9 correspond to claims 60-68 in the parent case, which were cancelled as a result of a March 11, 2003 restrictions requirement and pursued in this division. Therefore, in view of 35 U.S.C. § 121, claims 1-9 cannot be rejected for obviousness-type double patenting over the

claims in the parent application. Accordingly, the double patenting rejection should be withdrawn.

Wherefore, allowance of the claims and expedient passage to issue are respectfully requested.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

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